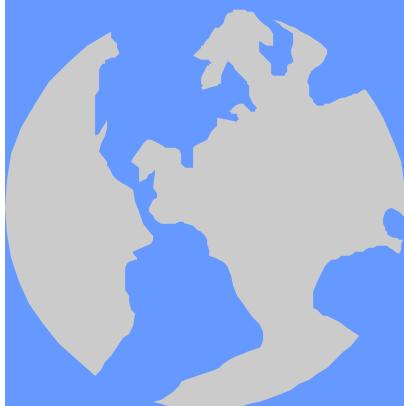


THE CERTIFICATION OF THE
SPERWER-RNLA UAV SYSTEM



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Airworthiness Branch / Directorate of Materiel
RNLAF

Report Documentation Page

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Main Driver for action

SECURITY

SAFETY



Quality of life



Sperwer-RNLA UAV Certification



- **RNLAf Airworthiness Program**
- **RNLA Sperwer program**
- **SPERWER Certification**
- **UAV-system under Airworthiness**



RNLAF Airworthiness Program

JAA

EU

NETH. Legislation

JAR 21

LE 21

JAA

JAR 145

LE 145

RNLAF Airw. Requirements

Certification Process

Continued Airworthiness

Aircraft/Air Vehicle:

Each Machine > Atmosphere > Forces of Air > over 20 kg

Requirement for "pilot on board" traded for "Restricted Area"



SPERWER/RNLA Program

4 SYSTEMS

EACH:

1 Ground Component

Launching station
Ground Control Station
Ground Data Terminal
Platoon Maintenance facility
Flight Safety System

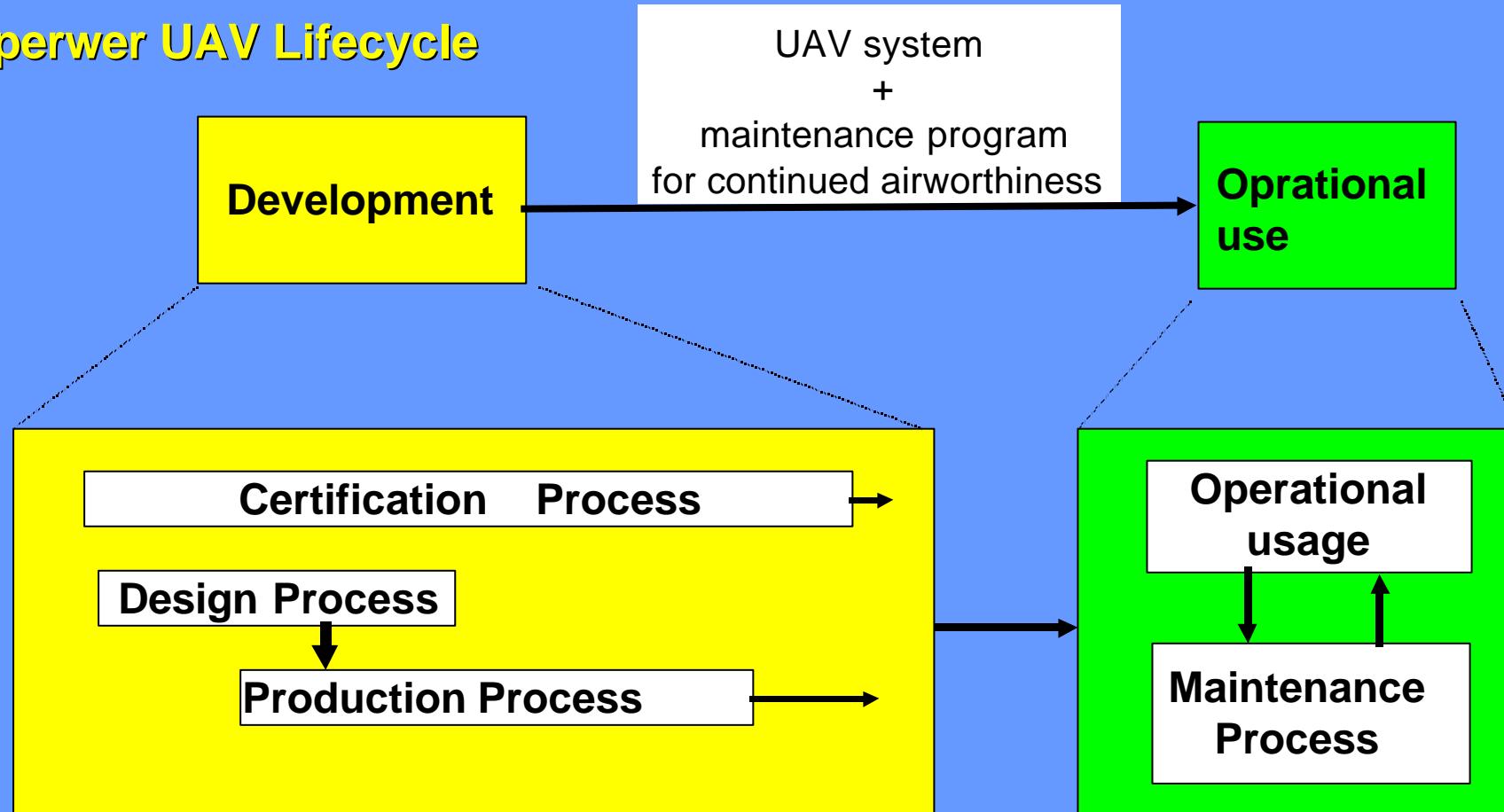
8 Air Vehicles

- CONTRACT: Functional + Airworthiness
- Start 1995 >>>>> delivery 1999/2000/2001



Sperwer-RNLA UAV Certification

Sperwer UAV Lifecycle





SPERWER/RNLA Certification Plan

- **CERTIFICATION SPERWER**

- **Subject of certification**
- **Basic Requirements**
- **Certification Committee**
- **Certification process**

To be included:

- Continued Airworthiness (config.man., documentation, maintenance plan, organization)
- Operational Organization

Goal: >>> Type Certificate for Sperwer System (restricted Area)

>>> Certificate of airworthiness each AV (restricted Area)



SPERWER/RNLA Certification plan

Subject of cerification
AV + *“Command Line”*

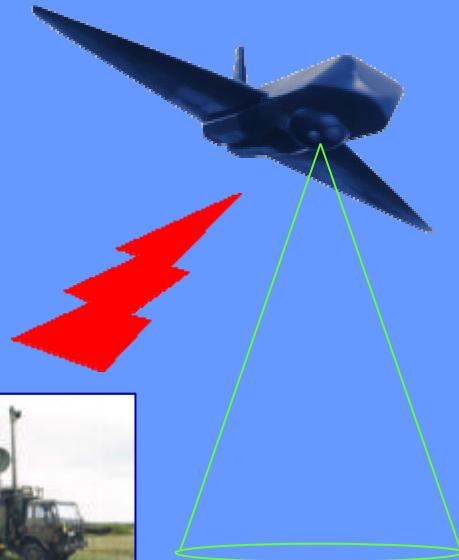
LAUNCHER



GCS - GDT



Flight
Safety
System





SPERWER/RNLA Certification Plan

BASIC REQUIREMENTS

**In 1995 no Requirements nor Experience (UAV)
Still a Requirement for Certification!**



- From JAR/VLA developed:
 - Type Requirement Basis Definition (AS96 - 013)
 - Description Requirements (DR)
 - Means of Compliance Definition

**UAV (sperwer) differences from VLA:
Software (pre-programmed flight), Up/down link, Rules of Safety**



SPERWER/RNLA Certification Plan

- **CERTIFICATION Committee**
 - **Director of Materiel RNLAF/Q&A**
 - Chair + secretariat + QA (GQAR)
 - **Director of Materiel RNLAF/Weapon System Manager**
 - Technical assistance A/C Systems/requirements
 - **Director of Operations RNLAF/Ops Research & Eval.**
 - Operational/technical assistance / flight testing
 - **Neth. Aerospace Laboratory (NLR)**
 - Technical assistance
 - **Director of Materiel RNLA**
 - Program / project management + Software & maintenance



SPERWER/RNLA Certification Plan

- Certification Process (TC + CoA)
 - **Further definition of Means of Compliance**
 - **Compliance Demonstration**
 - Design, testing (ground/flight), simulation
 - Airworthiness Compliance Reports
 - **Airworthiness Acceptance**
 - Configuration + Manufacturing and Inspection File
 - Production and Testing >> Acceptance Test Report
 - **GQA all over the process**
 - Operational Verification at Mourmelon (Fr)
 - Logistic Verification (Maintenance Concept + documentation)
 - **Final Qualification Review**



SPERWER/RNLA Certification

• MILESTONES

- September 1999 - First system Acceptance by RNLA for test & training , *LIMITED RELEASE* to fly for RNLA OPERATIONAL VERIFICATION at *Mourmelon Range (FR)*
- December 2000 - Temporary Certificate of Airworthiness per AV for flight in *RESTRICTED AREA*
- December 2001 - Final Qualification Review: Type Design ready for Certification
- January 2002 - Type Certificate for RESTRICTED AREA *issued to RNLA* for the Sperwer-RNLA system
- Ultimate 2002 - All Air Vehicles upgraded to TC Configuration, CoA for each AV



SPERWER/RNLA Situation

EMERGING AIRWORTHINESS PHILOSOPHY

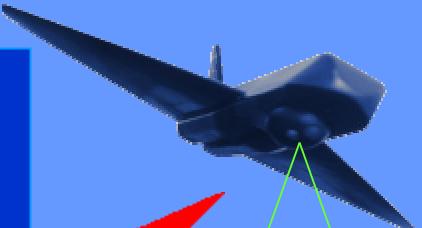
AW AUTHORITY:
RNLAF

TC - Holder: RNLA

OEM: SAGEM (FR)

SPERWER/RNLA system

- TC/RA
- COA per AV



GCS - GDT



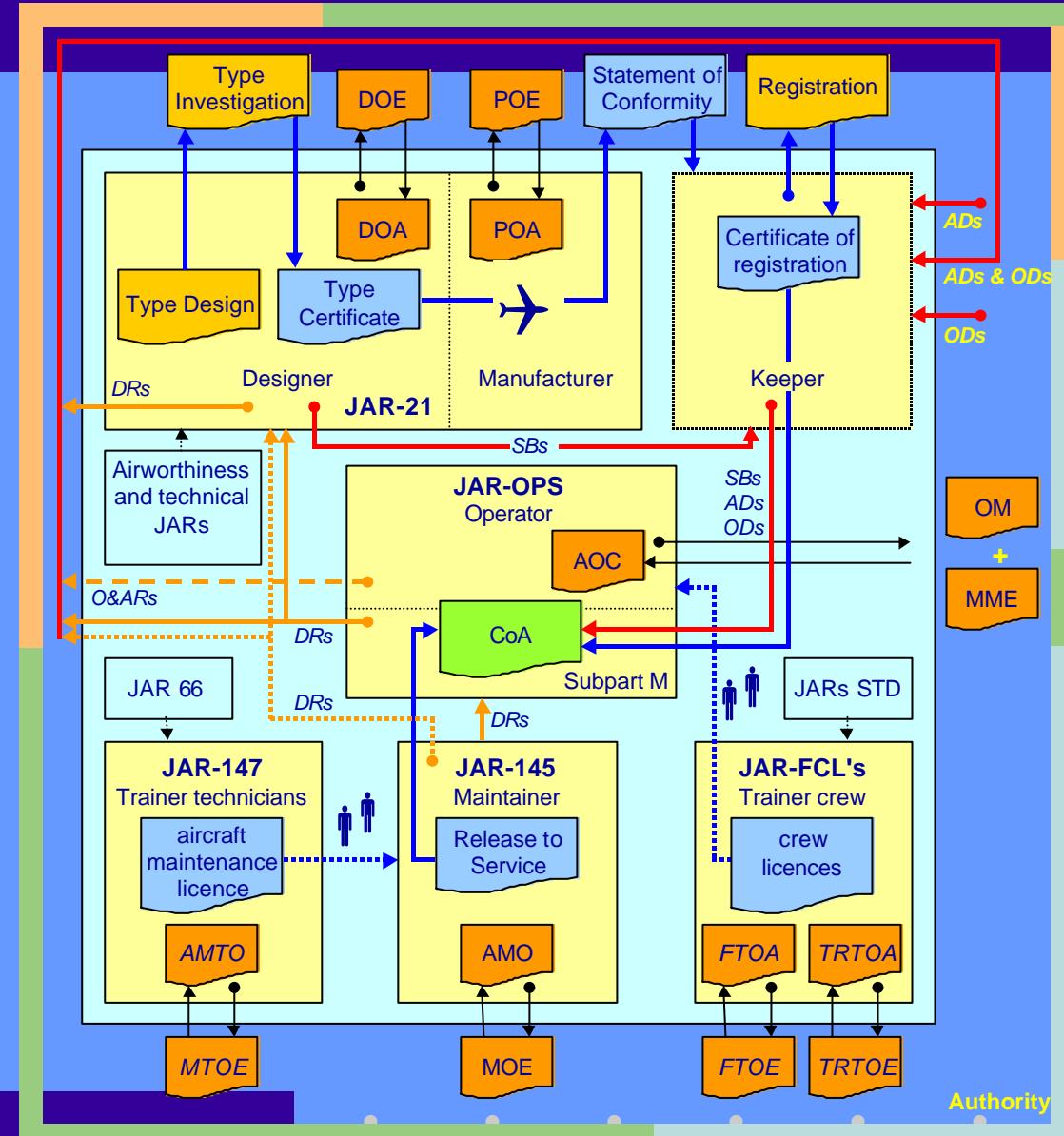
Flight
Safety
System



JAA- philosophy

Certification
Maintenance
Operations
Licensing

16/06/02

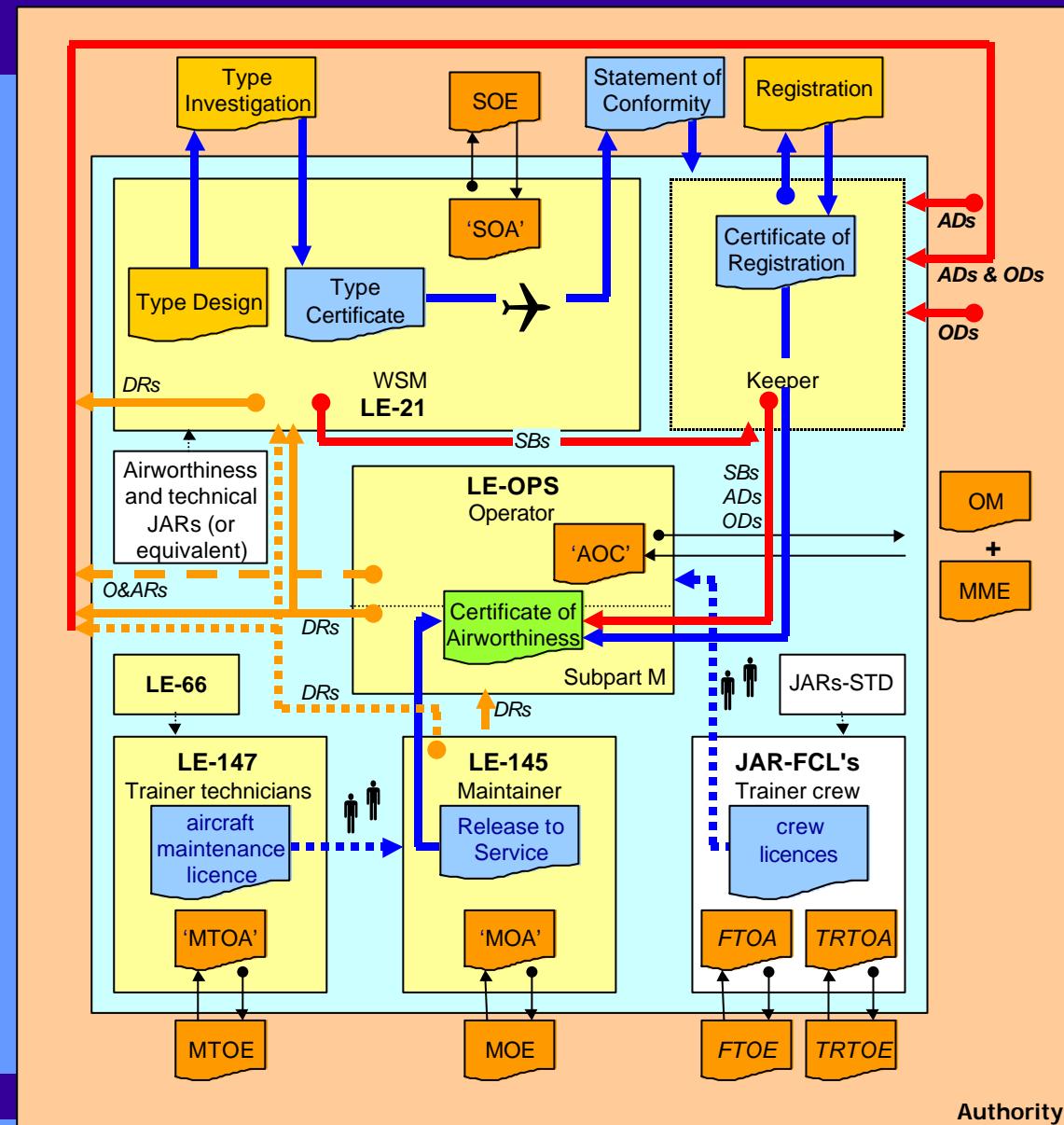


RNLAF Military Aviation Requirements



Certification Maintenance Operation Licensing

16/06/02



15



SPERWER Certification Program

AIRWORTHINESS...

From the *first START* ...



...To the last FINISH !!!

